

## **WHAT IS CLAIMED IS:**

1. An electronic device comprising:
  - a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:
    - a gate electrode formed over the substrate;
    - a gate insulating film formed over the gate electrode;
    - a substantially intrinsic semiconductor layer formed over the gate insulating film;
    - an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;
    - at least one of a source and a drain electrodes formed over the n-type semiconductor layer;
    - an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer; and
    - a pixel electrode formed over the insulating film, wherein the pixel electrode is in contact with the at least one of the source and the drain electrodes.
2. An electronic device comprising:
  - a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:
    - a gate electrode formed over the substrate;
    - a gate insulating film formed over the gate electrode;
    - a substantially intrinsic semiconductor layer formed over the gate insulating film;
    - an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;
    - at least one of a source and a drain electrodes formed over the n-type semiconductor layer, wherein an edge of the at least one of the source and the drain electrodes is aligned with an edge of the n-type semiconductor layer;
    - an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer; and
    - a pixel electrode formed over the insulating film, wherein the pixel electrode is in contact with the at least one of the source and the drain electrodes.

3. An electronic device comprising:

a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:

a gate electrode formed over the substrate;

a gate insulating film formed over the gate electrode;

a substantially intrinsic semiconductor layer formed over the gate insulating film;

an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;

at least one of a source and a drain electrodes formed over the n-type semiconductor layer;

an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer; and

a pixel electrode formed over the insulating film, wherein the pixel electrode is in contact with the at least one of the source and the drain electrodes, and wherein a contact portion between the pixel electrode and the at least one of the source and the drain electrodes is not formed over the n-type semiconductor layer.

4. An electronic device comprising:

a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:

a gate electrode formed over the substrate;

a gate insulating film formed over the gate electrode;

a substantially intrinsic semiconductor layer formed over the gate insulating film;

an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;

at least one of a source and a drain electrodes formed over the n-type semiconductor layer;

an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer, and wherein the insulating film is in contact with an edge of the n-type semiconductor layer; and

a pixel electrode formed over the insulating film, wherein the pixel electrode

is in contact with the at least one of the source and the drain electrodes.

5. An electronic device comprising:

a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:

a gate electrode formed over the substrate;

a gate insulating film formed over the gate electrode;

a substantially intrinsic semiconductor layer formed over the gate insulating film;

an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;

at least one of a source and a drain electrodes formed over the n-type semiconductor layer;

an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer, and wherein the insulating film is in contact with the gate insulating film; and

a pixel electrode formed over the insulating film, wherein the pixel electrode is in contact with the at least one of the source and the drain electrodes.

6. An electronic device comprising:

a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:

a gate electrode formed over the substrate;

a gate insulating film formed over the gate electrode;

a substantially intrinsic semiconductor layer formed over the gate insulating film;

an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;

at least one of a source and a drain electrodes formed over the n-type semiconductor layer, wherein an edge of the at least one of the source and the drain electrodes is aligned with an edge of the n-type semiconductor layer;

an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer; and

a pixel electrode formed over the insulating film, wherein the pixel electrode

is in contact with the at least one of the source and the drain electrodes, and wherein a contact portion between the pixel electrode and the at least one of the source and the drain electrodes is not formed over the n-type semiconductor layer.

7. An electronic device comprising:

a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:

a gate electrode formed over the substrate;

a gate insulating film formed over the gate electrode;

a substantially intrinsic semiconductor layer formed over the gate insulating film;

an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;

at least one of a source and a drain electrodes formed over the n-type semiconductor layer, wherein an edge of the at least one of the source and the drain electrodes is aligned with an edge of the n-type semiconductor layer;

an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer, and wherein the insulating film is in contact with an edge of the n-type semiconductor layer; and

a pixel electrode formed over the insulating film, wherein the pixel electrode is in contact with the at least one of the source and the drain electrodes.

8. An electronic device comprising:

a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:

a gate electrode formed over the substrate;

a gate insulating film formed over the gate electrode;

a substantially intrinsic semiconductor layer formed over the gate insulating film;

an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;

at least one of a source and a drain electrodes formed over the n-type semiconductor layer, wherein an edge of the at least one of the source and the drain electrodes is aligned with an edge of the n-type semiconductor layer;

an insulating film comprising a resinous material formed over the thin film

transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer, and wherein the insulating film is in contact with the gate insulating film; and

a pixel electrode formed over the insulating film, wherein the pixel electrode is in contact with the at least one of the source and the drain electrodes.

9. An electronic device comprising:

a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:

a gate electrode formed over the substrate;

a gate insulating film formed over the gate electrode;

a substantially intrinsic semiconductor layer formed over the gate insulating film;

an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;

at least one of a source and a drain electrodes formed over the n-type semiconductor layer;

an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer, and wherein the insulating film is in contact with an edge of the n-type semiconductor layer; and

a pixel electrode formed over the insulating film, wherein the pixel electrode is in contact with the at least one of the source and the drain electrodes, and wherein a contact portion between the pixel electrode and the at least one of the source and the drain electrodes is not formed over the n-type semiconductor layer.

10. An electronic device comprising:

a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:

a gate electrode formed over the substrate;

a gate insulating film formed over the gate electrode;

a substantially intrinsic semiconductor layer formed over the gate insulating film;

an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;

at least one of a source and a drain electrodes formed over the n-type

semiconductor layer;

an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer, and wherein the insulating film is in contact with the gate insulating film; and

a pixel electrode formed over the insulating film, wherein the pixel electrode is in contact with the at least one of the source and the drain electrodes, and wherein a contact portion between the pixel electrode and the at least one of the source and the drain electrodes is not formed over the n-type semiconductor layer.

11. An electronic device comprising:

a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:

a gate electrode formed over the substrate;

a gate insulating film formed over the gate electrode;

a substantially intrinsic semiconductor layer formed over the gate insulating film;

an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;

at least one of a source and a drain electrodes formed over the n-type semiconductor layer;

an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer, wherein the insulating film is in contact with an edge of the n-type semiconductor layer, and wherein the insulating film is in contact with the gate insulating film; and

a pixel electrode formed over the insulating film, wherein the pixel electrode is in contact with the at least one of the source and the drain electrodes.

12. An electronic device according to any one of claims 1-11, wherein the substrate comprises one selected from the group consisting of polyethylene terephthalate, polyethylene naphthalate, polyethylene sulfite, and polyimide.

13. An electronic device according to any one of claims 1-11, wherein the gate insulating film comprises silicon oxide or silicon nitride.

14. An electronic device according to any one of claims 1-11, wherein the substantially intrinsic semiconductor layer comprises amorphous silicon or microcrystalline silicon.

15. An electronic device according to any one of claims 1-11, wherein the at least one of the source and the drain electrodes comprises aluminum.

16. An electronic device according to any one of claims 1-11, wherein the insulating film comprising the resinous material comprises polyimide.

17. An electronic device according to any one of claims 1-11, wherein the pixel electrode comprises ITO.

18. A computer comprising:  
a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:  
a gate electrode formed over the substrate;  
a gate insulating film formed over the gate electrode;  
a substantially intrinsic semiconductor layer formed over the gate insulating film;  
an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;  
at least one of a source and a drain electrodes formed over the n-type semiconductor layer;  
an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer; and  
a pixel electrode formed over the insulating film, wherein the pixel electrode is in contact with the at least one of the source and the drain electrodes.

19. A computer comprising:  
a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:  
a gate electrode formed over the substrate;  
a gate insulating film formed over the gate electrode;  
a substantially intrinsic semiconductor layer formed over the gate insulating

film;

an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;

at least one of a source and a drain electrodes formed over the n-type semiconductor layer, wherein an edge of the at least one of the source and the drain electrodes is aligned with an edge of the n-type semiconductor layer;

an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer; and

a pixel electrode formed over the insulating film, wherein the pixel electrode is in contact with the at least one of the source and the drain electrodes.

20. A computer comprising:

a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:

a gate electrode formed over the substrate;

a gate insulating film formed over the gate electrode;

a substantially intrinsic semiconductor layer formed over the gate insulating film;

an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;

at least one of a source and a drain electrodes formed over the n-type semiconductor layer;

an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer; and

a pixel electrode formed over the insulating film, wherein the pixel electrode is in contact with the at least one of the source and the drain electrodes, and wherein a contact portion between the pixel electrode and the at least one of the source and the drain electrodes is not formed over the n-type semiconductor layer.

21. A computer comprising:

a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:

a gate electrode formed over the substrate;

a gate insulating film formed over the gate electrode;



a substantially intrinsic semiconductor layer formed over the gate insulating film;

an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;

at least one of a source and a drain electrodes formed over the n-type semiconductor layer;

an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer, and wherein the insulating film is in contact with an edge of the n-type semiconductor layer; and

a pixel electrode formed over the insulating film, wherein the pixel electrode is in contact with the at least one of the source and the drain electrodes.

22. A computer comprising:

a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:

a gate electrode formed over the substrate;

a gate insulating film formed over the gate electrode;

a substantially intrinsic semiconductor layer formed over the gate insulating film;

an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;

at least one of a source and a drain electrodes formed over the n-type semiconductor layer;

an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer, and wherein the insulating film is in contact with the gate insulating film; and

a pixel electrode formed over the insulating film, wherein the pixel electrode is in contact with the at least one of the source and the drain electrodes.

23. A computer comprising:

a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:

a gate electrode formed over the substrate;

a gate insulating film formed over the gate electrode;

a substantially intrinsic semiconductor layer formed over the gate insulating film;

an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;

at least one of a source and a drain electrodes formed over the n-type semiconductor layer, wherein an edge of the at least one of the source and the drain electrodes is aligned with an edge of the n-type semiconductor layer;

an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer; and

a pixel electrode formed over the insulating film, wherein the pixel electrode is in contact with the at least one of the source and the drain electrodes, and wherein a contact portion between the pixel electrode and the at least one of the source and the drain electrodes is not formed over the n-type semiconductor layer.

24. A computer comprising:

a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:

a gate electrode formed over the substrate;

a gate insulating film formed over the gate electrode;

a substantially intrinsic semiconductor layer formed over the gate insulating film;

an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;

at least one of a source and a drain electrodes formed over the n-type semiconductor layer, wherein an edge of the at least one of the source and the drain electrodes is aligned with an edge of the n-type semiconductor layer;

an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer, and wherein the insulating film is in contact with an edge of the n-type semiconductor layer; and

a pixel electrode formed over the insulating film, wherein the pixel electrode is in contact with the at least one of the source and the drain electrodes.

25. A computer comprising:

a panel having a thin film transistor formed over a substrate, the thin film

transistor comprising:

- a gate electrode formed over the substrate;

- a gate insulating film formed over the gate electrode;

- a substantially intrinsic semiconductor layer formed over the gate insulating film;

- an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;

- at least one of a source and a drain electrodes formed over the n-type semiconductor layer, wherein an edge of the at least one of the source and the drain electrodes is aligned with an edge of the n-type semiconductor layer;

- an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer, and wherein the insulating film is in contact with the gate insulating film; and

- a pixel electrode formed over the insulating film, wherein the pixel electrode is in contact with the at least one of the source and the drain electrodes.

26. A computer comprising:

- a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:

- a gate electrode formed over the substrate;

- a gate insulating film formed over the gate electrode;

- a substantially intrinsic semiconductor layer formed over the gate insulating film;

- an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;

- at least one of a source and a drain electrodes formed over the n-type semiconductor layer;

- an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer, and wherein the insulating film is in contact with an edge of the n-type semiconductor layer; and

- a pixel electrode formed over the insulating film, wherein the pixel electrode is in contact with the at least one of the source and the drain electrodes, and wherein a contact portion between the pixel electrode and the at least one of the source and the drain electrodes is not formed over the n-type semiconductor layer.

27. A computer comprising:

a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:

a gate electrode formed over the substrate;

a gate insulating film formed over the gate electrode;

a substantially intrinsic semiconductor layer formed over the gate insulating film;

an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;

at least one of a source and a drain electrodes formed over the n-type semiconductor layer;

an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer, and wherein the insulating film is in contact with the gate insulating film; and

a pixel electrode formed over the insulating film, wherein the pixel electrode is in contact with the at least one of the source and the drain electrodes, and wherein a contact portion between the pixel electrode and the at least one of the source and the drain electrodes is not formed over the n-type semiconductor layer.

28. A computer comprising:

a panel having a thin film transistor formed over a substrate, the thin film transistor comprising:

a gate electrode formed over the substrate;

a gate insulating film formed over the gate electrode;

a substantially intrinsic semiconductor layer formed over the gate insulating film;

an n-type semiconductor layer formed over the substantially intrinsic semiconductor layer;

at least one of a source and a drain electrodes formed over the n-type semiconductor layer;

an insulating film comprising a resinous material formed over the thin film transistor, wherein the insulating film is not in contact with the substantially intrinsic semiconductor layer, wherein the insulating film is in contact with an edge of the n-type semiconductor layer, and wherein the insulating film is in contact with the gate

insulating film; and

a pixel electrode formed over the insulating film, wherein the pixel electrode is in contact with the at least one of the source and the drain electrodes.

29. A computer according to any one of claims 18-28, wherein the substrate comprises one selected from the group consisting of polyethylene terephthalate, polyethylene naphthalate, polyethylene sulfite, and polyimide.

30. A computer according to any one of claims 18-28, wherein the gate insulating film comprises silicon oxide or silicon nitride.

31. A computer according to any one of claims 18-28, wherein the substantially intrinsic semiconductor layer comprises amorphous silicon or microcrystalline silicon.

32. A computer according to any one of claims 18-28, wherein the at least one of the source and the drain electrodes comprises aluminum.

33. A computer according to any one of claims 18-28, wherein the insulating film comprising the resinous material comprises polyimide.

34. A computer according to any one of claims 18-28, wherein the pixel electrode comprises ITO.